New Jersey PFAS Issues

DATE: July 08, 2019

New Jersey PFAS Standards

TALKING POINTS

- The EPA is moving forward with the maximum contaminant level (MCL) process outlined in the Safe Drinking Water Act (SDWA) for PFOA and PFOS. The process prescribed by the Act ensures scientific integrity and transparency when developing regulations for contaminants in public water systems.
- EPA's work to address PFAS is extensive and continues to include support to states—like New Jersey—who are acting when drinking water issues arise that may impact their citizens.
- The Agency's comprehensive PFAS Action Plan identifies both short-term solutions for addressing PFAS chemicals and long-term strategies that will help provide the tools and technologies states, tribes, and local communities need to clean up sites and provide clean and safe drinking water to their residents.

BACKGROUND

- The New Jersey Department of Environmental Protection (NJDEP) issued a directive on March 25th, 2019 that requires the five companies – Solvay, DuPont, Dow DuPont, Chemours and 3M – to provide the DEP a detailed accounting of their use and discharge of PFAS chemicals in New Jersey.
- It requires information ranging from use and discharge of the chemicals through wastewater treatment plants, air emissions, and sales of products containing the chemicals to current development, manufacture, use and release of newer PFAS chemicals in the state. It also notifies the companies that the state will hold them financially responsible for the cost of remediation and treatment of PFAS-related contamination.
- The NJDEP issued the directive under the authorities granted by New Jersey's Spill Compensation and Control Act, Water Pollution Control Act and Air Pollution Control Act. Link to Directive: https://www.nj.gov/dep/docs/statewide-pfas-directive-20190325.pdf
- Current NJ PFAS Standards, Criteria, and Guidance:
    - NJ set a final MCL for PFNA = **13 ppt**.
    - NJ is considering MCLs for PFOA and PFOS.
        - Potentially **14 ppt** for PFOA based on panel recommendations.
        - Potentially **13 ppt** for PFOS based on panel recommendations.
    - NJ established a ground water quality standard for PFNA of 13 ppt.
    - NJ has established interim ground water quality standard for PFOA of 10 ppt and PFOS of 10 ppt.

Contaminated Sites

TALKING POINTS

- The EPA has taken steps to oversee or assist with PFAS cleanup in five contaminated sites in New Jersey.
    - These steps include advising the entities charged with cleanup and/or declaring contaminated locations as Superfund sites or RCRA Corrective Action Facilities.

- Contamination at each of these sites was traced back to either a chemical company or a US military facility.
    - American Cyanamid, Superfund Site – Bridgewater, NJ
    - Chemours Chambers Works, RCRA Corrective Action Facility – Deepwater, NJ
    - Solvay Specialty Polymers, RCRA Corrective Action Facility – West Deptford, NJ
    - Federal Aviation Administration (FAA) Facilities – Atlantic City, NJ
    - Joint Base McGuire-Dix-Lakehurst (JBMDL), Superfund Site – 16.1 miles from Trenton, NJ
- Mitigation strategies are in place where necessary to treat contaminated drinking water to prevent unacceptable human exposure.

BACKGROUND

- American Cyanamid Superfund Site - Bridgewater, New Jersey
    - The 435-acre American Cyanamid Superfund site is located adjacent to the Raritan River in Bridgewater, NJ, and was placed on the NPL in 1983 after contamination was found in impoundments, soil and groundwater. The site was used for numerous chemical and pharmaceutical manufacturing operations for more than 90 years.
    - This site was placed on the Administrator's Emphasis List. In September 2018, the EPA selected a $74 million remedy to address contaminated impoundments, which is expected to be the last phase of cleanup at the site. The impoundments are just over 4 acres in size and contain approximately 55,000 cubic yards of acid tar waste. The remedy includes excavation and dewatering of contaminated material within the impoundments, followed by shipment out of the area to a facility for treatment and disposal. Soil or clay impacted by the impoundment contaminants will be treated on-site using stabilization and solidification. Surrounding "berm materials" that do not require treatment will be used as backfill, and a protective cover will be placed over the entire area addressed.
- Chemours Chambers Works, RCRA Corrective Action Facility - Deepwater, New Jersey
    - Chambers Works is a 1,455-acre complex located in Deepwater, New Jersey along the eastern shore of the Delaware River, just north of the Delaware Memorial Bridge. The facility was formerly owned by DuPont, now owned by Chemours, which is performing investigation and cleanup work at the facility under a RCRA Corrective Action Permit issued by the EPA. The EPA is the lead agency, working with the NJDEP, which provides technical support.
    - Operations have included the production of PFAS, including PFOA. Facility soils and groundwater are impacted by elevated levels of volatile organic compounds, semi-volatile organic compounds, metals, and PFAS.
    - In 2009, DuPont began implementing a sampling program for private drinking water wells in the vicinity of the facility. For wells showing concentrations of PFAS above applicable regulatory levels and advisories, DuPont (and now Chemours) has initially provided bottled water, and the necessary mitigation, usually by installing and maintaining granulated activated carbon (GAC) treatment systems.
    - On March 6th, 2019, the company presented a summary of new sampling data to Region 2 and the NJ Dept of Environmental Protection showing that GenX is being released into the air from a stack at the facility, at levels up to the low parts per million.

- Chemours informed Region 2 that it plans to install pollution controls to reduce the emissions as part of the requirement under TSCA 5(e) to reduce PFAS emissions by 99%.
- EPA is working closely with NJDEP to seek more information from Chemours relating to the air emissions and review of the schedule and subsequent plans for implementation.

- DuPont facility – Parlin, NJ
  - The facility is a state-lead RCRA site where a large scale PFOA investigation is ongoing.
  - Recently, EPA and NJDEP asked DuPont to sample on-site monitoring wells after learning that Chemours shipped a GenX-containing material to the facility. Monitoring results showed that GenX was detected in 5 of 9 wells at levels ranging up to 850 ppt.
  - PFOA has also been detected in monitoring wells in the vicinity of the facility and in the Perth Amboy municipal water supply wellfield a few miles away. In the municipal supply, the most recent water sampling (2018) found PFOA in low levels in the treated water (9.4 ppt, well below EPA's health advisory level). There are no private drinking water wells in the area.
  - We plan to send a letter jointly with NJDEP, to Chemours and DuPont, asking the companies to expand their GenX sampling near the Parlin, NJ facility and provide additional information. Among our specific requests is that they sample for GenX in the Perth Amboy public supply wells.
- Solvay Specialty Polymers, RCRA Corrective Action Facility - West Deptford, New Jersey
  - Solvay is a 243-acre facility situated in a mostly industrial setting, surrounded by a rural residential area and bordered to the north by the Delaware River. The hazardous waste management operations are managed under a New Jersey DEP permit for on-site hazardous waste storage and incineration.
  - Solvay used the telomer-based fluorosurfactant (known as Surflon S-111) and sodium perfluorooctanoate, which contain chemical compounds belonging to PFAS, as a processing aid in its manufacturing processes until 2010. Surflon S-111 was used from 1985 to 2010. Sodium perfluorooctanoate was also used from 1995 to 2003. Solvay voluntarily joined the EPA 2010 / 2015 PFOA Stewardship Program in 2006, and it's our understanding that by 2010 Solvay phased out the use of PFAS at the facility.
  - Delaware River surface water samples collected for PFAS by the Delaware River Basin Commission in 2007-2009 showed elevated levels of PFNA and others. In addition, NJDEP performed sampling for PFAS in selected Gloucester County public water systems in 2009 and in 2013. Elevated levels of PFNA and others were also detected.
  - Solvay performed investigations in 2014 on surface water/sediment, on-site/off-site groundwater, public water systems, and private wells and also conducted air dispersion and deposition modeling. The results showed that PFNA and PFOA, among the PFAS analyzed, were the contaminants of concern in groundwater, the public water systems and private wells. PFNA and PFOA were detected in groundwater above the applicable state interim specific groundwater criterion (10 parts per trillion or ppt for PFNA) and state health guideline (40 ppt for PFOA).
  - Similar PFAS compounds were also detected in surface water and sediment.
- Federal Aviation Administration Facilities - Atlantic City, New Jersey
  - The Federal Aviation Administration (FAA) is currently performing PFAS investigations at several areas throughout the site and addressing PFAS contamination found within several Atlantic City Municipal Wells located on their property.

- The William J. Hughes Technical Center is located in Atlantic City, New Jersey and serves as the national test center for FAA research and development programs. The Technical Center encompasses 5,052 acres and is located within the Pinelands National Reserve.
- The FAA leases approximately 119 acres to the New Jersey Air National Guard and the Department of Homeland Security.
- The site was added to the NPL in 1990 and contamination has been addressed through a base-wide remedial investigation at individual areas.
- Historical fire-fighting training areas, aircraft hangars and fire departments at the FAA and Air National Guard areas may have included the use of aqueous film forming foam containing PFAS.

- Joint Base McGuire-Dix-Lakehurst Superfund Site – near Trenton, New Jersey
  - Joint Base McGuire-Dix-Lakehurst (JBMDL) is approximately 16.1 miles from Trenton, New Jersey. Ft. Dix, an Army base, and Lakehurst, a Navy facility, is now under the jurisdiction of the USAF Air Mobility Command when it was consolidated with the adjoining Air Force facility (McGuire) to become JBMDL.
  - Cleanup activities are managed through the Air Force.
  - Since early 2015, the Air Force has been investigating PFAS at JBMDL.
  - In August of 2015, a 34 potential PFAS sources were identified at JBMDL: 21 sites at McGuire, 5 sites at Dix, and 8 sites at Lakehurst.
  - In July of 2016, on-base sampling found extremely high levels of PFAS (over 200,000 parts per trillion (ppt)) mainly caused by fire training areas, crash sites and other areas utilizing fire-fighting foams containing the PFAS compounds.
  - All of the on-base drinking water wells are 800 to 900 feet deep, tapping into the deeper aquifers that are not impacted by PFAS contamination.
  - Sampling of private drinking water wells in areas within a two-mile distance downgradient of the JBMDL was performed. As of Dec. 2018, 188 wells were sampled and results indicated only five private wells located downgradient from the JBMDL-Lakehurst boundary exceeded the EPA Health Advisory Level of 70ppt. These wells were provided bottled water while installing GAC or reverse osmosis treatment units. No other results off-base were above the health advisory level.

Laboratory Support to NJDEP

TALKING POINTS

At the request of the New Jersey Department of Environmental Protection (NJ DEP), EPA is analyzing environmental samples for per- and polyfluoroalkyl substances (PFAS) present in areas of concern near industrial sources in southwestern New Jersey. The samples were collected by NJ DEP in cooperation with an environmental consulting firm hired by NJ DEP.

In a recent analysis of 24 soil samples and 24 vegetation samples, EPA scientists used non-targeted analysis laboratory methods to identify and measure concentrations of a subclass of PFAS, known as chloro-perfluoro-polyether-carboxylate (ClPFPECA). Nine ClPFPECA chemicals were measured. On March 8, EPA shared a report of these analyses with NJ DEP for their review and use.

All the soil and vegetation samples that EPA analyzed had measurable concentrations of one or more PFAS, and many had concentrations of multiple chemicals. Concentrations across all chemicals and samples ranged from below the lab method's detection limit to 0.0145 ug/g (micrograms per gram). Study results will be used by NJ DEP to better understand the nature and extent of PFAS environmental contamination and source attribution.

Background:

- EPA is analyzing a variety of samples for NJ DEP, including surface water and sediments; groundwater from private non-potable wells and non-potable irrigation wells; soil samples; and vegetation samples.
- The soil and vegetation samples in this analysis were collected by NJ DEP between November 8, and November 10, 2017 from various locations in the vicinity of industrial sources.
- Since receiving the samples in late 2017, EPA scientists have been working to develop and apply the methods required for sample analysis which is complicated by the fact that chemical standards are not available and that the methods produce large amounts of data requiring sophisticated interpretation and quality assurance to produce results. This particular support for NJ DEP is part of a larger overall effort by EPA to support several states with the analysis of PFAS in a variety of media.
- NJ DEP is responsible for communication of study results including making results available to property owners and to the public.
- This analysis is one piece of information that public officials use when determining whether there is a risk to public health. Other factors, such as exposure, also need to be considered. Questions about risk to public health should be directed to the NJ DEP.
- The ClPFPECA chemicals measured by EPA scientists in the 24 soil samples and 24 vegetation samples were:

1) $C_7ClF_{12}O_4$
2) $C_8ClF_{14}O_4$
3) $C_9ClF_{16}O_5$
4) $C_{10}ClF_{18}O_5$
5) $C_{11}ClF_{20}O_5$
6) $C_{11}ClF_{20}O_6$
7) $C_{12}ClF_{22}O_6$
8) $C_{13}ClF_{24}O_6$
9) $C_{14}ClF_{26}O_6$

- Non-targeted analysis involves analyzing water, soil and other types of samples to identify chemicals that are present without having a preconceived idea of what chemicals may be in the samples. With targeted analysis, researchers first identify what they are looking for, and then they test for it. Non-targeted analysis is particularly valuable when analyzing samples for PFAS because targeted methods are geared toward a relatively small number (15-20) of the PFAS representing only a small fraction of the total class of PFAS chemicals, which is believed to number around 3,000.

- EPA is using a combination of targeted and non-targeted analysis methods to evaluate PFAS in environmental samples.

- In a separate analysis conducted for NJ DEP in fall 2018, EPA scientists used targeted laboratory methods to measure concentrations of perfluorinated carboxylic acids (PFCA) in soil samples. Thirteen PFCA chemicals were measured in that analysis and are listed below:

1. Perfluorobutanoic Acid (PFBA)
2. Perfluoropentanoic Acid (PFPeA)
3. Perfluorohexanoic Acid (PFHxA)
4. Perfluoroheptanoic Acid (PFHpA)
5. Perfluorooctanoic Acid (PFOA)
6. Perfluorononanoic Acid (PFNA)
7. Perfluorodecanoic Acid (PFDA)
8. Perfluoroundecanoic Acid (PFUnDA)
9. Perfluorododecanoic Acid (PRDoDA)
10. Perfluorotridecanoic Acid (PFTrDA)
11. Perfluorotetradecanoic Acid (PFTeDA)
12. Perfluorohexadecanoic Acid (PFHxDA)
13. Perfluorooctadecanoic Acid (PFODA)